THAT WHICH IS CLAIMED IS:

1. A method of manufacturing a decoupler for an interior trim component in a vehicle, comprising:

conveying materials into a mold to form a preform having a shape of the mold, wherein the mold has a perforated section and at least one panel movably engaged to the mold so as to selectively expose portions of the perforated section, wherein the density of the preform may be varied as the at least one panel is moved to expose the perforated section of the mold;

heating the preform to a temperature such that adjacent materials bond to one another upon cooling; and

forming the heated preform in the mold into a predetermined three-dimensional decoupler configuration.

2. The method of claim 1, wherein the vehicle interior trim component comprises carpeting.

3. The method of claim 1, wherein the vehicle interior trim component comprises a dash insulator.

4. The method of claim 1, wherein the vehicle interior trim component comprises trunk trim.

5. The method of claim 1, wherein the vehicle interior trim component comprises a headliner.

6. The method of claim 1, wherein the mold has a contoured shape.

7. The method of claim 1 wherein the materials comprise thermoplastic material, thermoset material, fibrous material, foam, woven material, nonwoven material, fiber of any type, and combinations

thereof.

8. The method of claim 7, wherein the fibers may comprise any of natural fibers, synthetic fibers, recycled fibers, bicomponent fibers and blends thereof.

9. The method of claim 8, wherein at least a portion of the fibers comprise amorphous fibers.

10. The method of claim 7, wherein the fibers comprise shoddy fibers.

11. The method of claim 1, wherein the material is conveyed into the mold in a substantially loose state.

12. The method of claim 1, wherein the material is conveyed into the mold from more than one direction.

13. The method of claim 1, wherein the material is conveyed into the mold so as to form a preform having first and second portions having different respective densities.

14. The method of claim 13, wherein the material is conveyed into the mold so as to form a preform having first and second portions said portions having different respective cross-sectional dimensions, and wherein the forming step comprises forming the heated preform into a predetermined three-dimensional decoupler configuration such that said first and second portions have substantially a uniform cross-sectional dimension, and different respective densities.

15. The method of claim 13, wherein the

material is conveyed into the mold so as to form a preform having first and second portions said portions having different respective cross-sectional dimensions, and wherein the forming step comprises forming the heated preform into a predetermined three-dimensional decoupler configuration such that said first and second portions have substantially different cross-sectional dimensions, and different respective densities.

16. The method of claim 1, wherein conveying material into the mold includes the adjusting of the rate of movement of the at least one panel to adjust fiber density in identified portions of the decoupler requiring enhanced sound attenuation.

17. The method of claim 16 wherein said at least one panel is hingedly moveable and selectively opened and closed.

18. The method of claim 1 wherein the materials are heated as they are conveyed into said mold.

19. The method of claim 1, further comprising the ascertaining of acoustic properties of a vehicle passenger compartment to identify portions of the decoupler requiring enhanced sound attenuation.

20. The method of claim 19, wherein the ascertaining of acoustic properties of the vehicle passenger compartment comprises identifying portions of the decoupler at which sound within a predetermined frequency range is directed at an intensity level that exceeds a threshold intensity level.

21. The method of claim 19, wherein the ascertaining of acoustic properties of the vehicle passenger compartment comprises generating a sound intensity map of at least a portion of the vehicle passenger compartment.

22. The method of claim 1 wherein said mold includes a partition.

23. The method of claim 1 wherein the density of the preform may be varied as the at least one panel is moved to expose the perforated portion of the mold.

24. The method of claim 1 wherein the step of heating the preform to a temperature such that adjacent material may bond to one another upon cooling comprises supplying the preform with material comprising an amorphous polymer and a crystalline polymer wherein the amorphous polymer is heated above its glass transition temperature (**Tg**) and the crystalline polymer is heated to a temperature below its melting point (**Tm**).

25. A system for manufacturing a decoupler for attenuating sound in a vehicle, comprising:

a mold, said mold comprising an upper mold portion and a lower mold portion, said upper and lower mold portions including upper and lower perforated sections for conveying air, said upper mold portion comprising at least one adjustable portion for establishing the thickness of said decoupler, said upper mold portion further comprising one or more moveable panels overlying said upper perforated sections;

a feeder configured to introduce material into the mold to form a preform having a shape of the mold;

wherein the mold is configured to heat the

preform to a temperature such that adjacent materials bond to one another upon cooling to form the heated preform into a predetermined three-dimensional decoupler configuration;

wherein the density of the preform within the mold may be varied by:

(i) moving the at least one panel to expose the perforated section of the mold as material is introduced into the mold; and/or

(ii) moving the at least one adjustable portion of the upper mold portion relative to the lower mold portion.

26. The system of claim 25 wherein the system includes a plurality of panels movable relative to the mold.

27. The system of claim 26 wherein said panels are hingedly movable and capable of being selectively opened and closed.

28. The system of claim 25 wherein the materials comprise thermoplastic material, thermoset material, fibrous material, foam, woven material, nonwoven material, fiber of any type, and combinations thereof.

29. The system of claim 25 further comprising a bale cutter that is configured to provide fibers to said feeder.

30. The system of claim 25 further comprising an opener that is configured to provide fibers to the blower in a substantially loose state.

31. The system of claim 25 further including a

process controller wherein said process controller includes inputting of processing variables and said process controller outputs control parameters to said system to provide a desired geometry and density for said preform.

32. The system of claim 25 further including a process controller wherein said process controller includes inputting of processing variables and said process controller outputs control parameters to said system to provide a desired geometry and density for said decoupler.

33. The system of claim 25 further including a machine-readable medium whose contents causes a system to perform a method of forming a decoupler for a vehicle interior trim component comprising

storing a desired acoustical characteristics of a decoupler configuration in said medium;

storing processing variables required to provide said desired acoustical characteristics of said decoupler;

selecting at least one processing variable required to form said decoupler with said desired acoustical characteristics;

outputting said at least one processing variable to said system to perform said method of forming said decoupler.

34. A decoupler for the attenuating sound in a vehicle, comprising a molded preform having the shape of a mold from which it was formed, the preform comprising thermally bonded material having first and second portions with different respective densities, the preform formed into the decoupler in said mold.

35. The decoupler of claim 34, wherein the first and second portions have substantially the same cross-sectional dimensions.

36. The decoupler of claim 34, wherein the first and second portions have different cross-sectional dimensions.

37. The decoupler of claim 34 wherein said preform having the shape of a mold comprises materials conveyed into said mold in a substantially loose state.

38. The decoupler of claim 34 wherein the material comprises thermoplastic material, thermoset material, fibrous material, foam, woven material, nonwoven material, fiber of any type, and combinations thereof.

39. The decoupler of claim 38 wherein the fibers may comprise any of natural fibers, synthetic fibers, bicomponent fibers and blends thereof.

40. The decoupler of claim 39, wherein at least a portion of the fibers comprise amorphous fibers.

41. The decoupler of claim 38, wherein the fibers comprise shoddy fibers.

42. The decoupler of claim 34, wherein the first and second portions comprise different denier fibers.

43. A mold for forming a decoupler for attenuating sound in a vehicle, comprising;

an upper mold portion and a lower mold portion, said upper and lower mold portions including an upper perforated section for conveying air;

said upper mold portion comprising at least one adjustable portion for determining the thickness of said decoupler;

said upper mold portion further comprising one or more moveable panels overlying said upper perforated sections;

a feeder for supplying material in a loose state to said mold;

a heater for supplying heated air into said mold;

wherein said decoupler is formed by collecting material in said mold, heating said material to a temperature such that the material binds together upon cooling, and adjusting the spacing of said upper mold portion to said lower mold portion.

44. The method of claim 43 wherein said lower mold section is perforated and said heater for supplying heated air to said mold supplies heated air through said perforations in said lower mold section.

45. A method of manufacturing an article having a controlled density, comprising:

conveying materials into a mold to form a preform having a shape of the mold, wherein the mold has a perforated portion and at least one panel movable relative to the mold so as to selectively expose portions of the perforated portion;

heating the preform to a temperature such that adjacent materials may bond to one another upon cooling; and

forming the heated preform in said mold into a predetermined three-dimensional configuration.

46. The method of claim 45 wherein said mold comprises upper and lower mold portions and said forming into a predetermined three-dimensional configuration comprises adjusting the spacing between said upper mold portion and lower mold portion.

47. The method of claim 45 wherein said mold comprises a plurality of upper and lower mold portions which independently move relative to one another.